

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
5 August 2004 (05.08.2004)

PCT

(10) International Publication Number  
**WO 2004/065920 A2**

(51) International Patent Classification<sup>7</sup>:

**G01J**

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PI, PT, RO, RU, SC, SD, SE, SG, SK, SI, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number:

PCT/US2004/001144

(22) International Filing Date: 16 January 2004 (16.01.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/440,887 17 January 2003 (17.01.2003) US

(71) Applicant (for all designated States except US): **GRIF-FIN ANALYTICAL TECHNOLOGIES, INC. [US/US]**; 3000 Kent Avenue, West Lafayette, IN 47906 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GROSSEN-BACHER, John, W. [US/US]**; 1309 Ridgeway Ave., Lafayette, IN 47904 (US). **PATTERSON, Garth, E. [US/US]**; 802 S. Brackney, Brookston, IN 47923 (US).

(74) Agent: **HYTA, Robert, C.**; Wells St. John, P.S., 601 W. 1st Avenue, Suite 1300, Spokane, WA 99201 (US).

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

**WO 2004/065920 A2**

(54) Title: MASS SPECTROMETER ASSEMBLIES MASS SPECTROMETRY VACUUM CHAMBER LID ASSEMBLIES AND MASS SPECTROMETER OPERATIONAL METHODS

(57) Abstract: One embodiment of a mass spectrometer assembly includes a base configured to define at least a portion of a vacuum chamber volume; a mass separator component within the vacuum chamber volume; a lid coupled to the mass separator component and configured to be removably operably coupled with respect to the base; and wherein the lid is configured to be positioned in a first operable position to form a hermetical seal with the base and provide the mass separator component within the vacuum chamber volume and a second operable position wherein at least a portion of the lid is spaced from the base and the mass separator component is at least partially removed from within the vacuum chamber volume. Mass spectrometer operational methods are provided that can include at least partially removing the lid from the base, wherein the removing of the lid also at least partially removes the mass separator component from the vacuum chamber volume; and inspecting the mass separator component with the mass separator component removed from the vacuum chamber volume.